

Appl. Serial No. 10/070,527

Amdt. Dated November 12, 2003

Response to Office Action mailed June 12, 2003

## REMARKS:

In making the amendments shown above, care has been taken to ensure that the claims remain supported by the specification and that no new matter has been introduced. In the Amendments, the Examiner's renumbering of the claims has been adopted. Applicant submits that the new claims address the objections raised by the Examiner.

As to the rejection of claims under 35 U.S.C. § 102(b) and §103(a), Applicant appreciates the time and consideration provided by Examiner in reviewing this application, but respectfully traverses the rejections under 35 U.S.C. § 102(b) and §103(a), and submits that the claims as presented herein are not unpatentable over the cited references, for at least the reasons set forth below.

The device of the instant invention, as claimed in Claim 28, comprises:

- (a) a tundish containing a liquid metal melt and having an outlet opening for the liquid metal melt, and an interior surface;
- (b) an immersion tube immersed in said liquid metal melt, forming an annular gap between said immersion tube and said interior surface of the tundish, said annular gap surrounding said outlet opening for the liquid metal melt; and
- (c) a height adjustable lance with a Laval nozzle for ejecting a propellant gas.

The atomizing device of Wessel comprises a tundish consistent with (a) above, an immersion tube, and a nozzle for ejecting a propellant gas. However, the immersion tube of Wessel is substantially different from that of the instant invention. Feature (b) of the instant invention, the immersion tube, is arranged within the tundish so as to form an annular gap surrounding the outlet opening of the tundish. In other words, this means that the gap extends in

the axial direction of the outlet opening. In contrast thereto, the annular gap formed between the tundish and the immersion tube in Wessel is located within the outlet opening, which means that the gap extends in radial direction of the outlet opening. With the inventive configuration claimed in this application, the end face of the immersion tube defines the gap width, so that it can be adjusted by axial displacement of the immersion tube relative to the interior surface of the tundish. Further, the immersion tube of the instant invention does not extend through the outlet opening and does not project from the outlet opening, so that the liquid metal freely flows out of the tundish without being in contact to the tube once it has left the tundish. Thus, the propellant gas can act on the liquid melt immediately after it leaves the tundish, when the liquid melt still has a very high temperature.

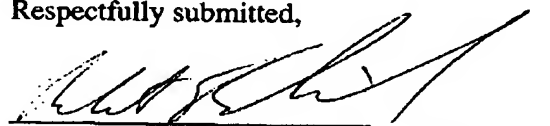
Further, Wessel does not disclose a height-adjustable lance as set forth in feature (c) above. The Examiner indicates that the tube of Wessel is height-adjustable, which implies that the Examiner takes the immersion tube to be the lance. According to the instant invention, the immersion tube and the lance are separate parts, the axial positions of which can be adjusted one relative to the other. Changing the axial position of the Laval nozzle relative to the immersion tube permits adjustment of the atomization parameters. For example, it permits positioning the nozzle below the lower edge of the immersion tube, as claimed in claim 30, or positioning the nozzle above the lower edge of the immersion tube, if desired. Such height adjustment of the lance relative to the immersion tube is not feasible with the atomization device of Wessel. Contrary to indications in the Office action, it appears that the tube of Wessel is not height-adjustable.

The applicant therefore respectfully submits that the invention claimed herein is novel and not obvious. Based on the foregoing, Applicant respectfully requests withdrawal of the rejections under 35 U.S.C. §§102(b) and 103(a).

Conclusion. It is respectfully submitted that the claims as presented define the invention in clear and concise patentable terms, that the objections and rejections of the Office Action have

been met, and that the application is in condition for allowance. Favorable treatment of this application at an early date is requested. The Commissioner is hereby authorized to charge any fees associated with this communication, including extension fees for a two-month extension of time to respond to the Office action, hereby requested, to our Deposit Account No. 50-0305. The Examiner is encouraged to call Robert J. Schneider at the direct number (312) 845-3919 with any questions that arise in connection with this application.

Respectfully submitted,



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Dated: November 12, 2003  
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**CERTIFICATE OF FACSIMILE TRANSMISSION UNDER 37 CFR § 1.8**

Date of Facsimile Transmission: November 12, 2003  
Transmitted to Facsimile No.: 703-872-9310  
Patent Application Ser. No.: 10/070,527  
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I hereby certify that the attached correspondence, namely, Response to Office Action, was transmitted by facsimile on the date listed above, to the U.S. Patent Office at the facsimile number listed above, under 37 C.F.R. § 1.8.

Signature: 

Typed Name of Person Signing this Certificate: Brenda A. Walton

Date of Signature: November 12, 2003